

FTYL01005C1/US

46/56

What is Claimed is:

1. A part maintenance system of a semiconductor processing system, comprising a factory-side system having at least one semiconductor processing system, and a vendor-side system owned by an administrator who manages the maintenance of said semiconductor processing system, wherein
said factory-side system comprises a factory-side sending/receiving means which sends and receives information to and from said vendor-side system through a bidirectional network, a preset means which stores a allowable limit value of operation time or the number of operations of a part of said preset semiconductor processing system, a measuring means which measures actual operation time or the number of actual operations of said part, and a maintenance judging means which compares said actual operation time or the number of actual operations and said allowable limit value with each other to judge an operation state of said part, and which sends an order processing request of said part to said vendor-side system through said network by said factory-side sending/receiving means in accordance with a result of said judgment,

said vendor-side system comprises a vendor-side sending/receiving means which sends and receives information to and from said factory-side system through said network, and an order processing means which carries out an order processing of a part when said vendor-side sending/receiving

FTYL01005C1/US

47/56

means receives an order processing request of that part from said factory-side system through said network.

2. A part maintenance system of a semiconductor processing system according to claim 1, wherein

said factory-side system stores at least two stage limit value levels as said allowable limit value which is previously set by said preset means, and when said maintenance judging means judges that said actual operation time or the number of actual operations reaches a first limit value level, said factory-side sending/receiving means sends an order processing request of the part to said vendor-side system through said network, and when said actual operation time or the number of actual operations reaches a next limit value level, said factory-side system carries out a notice processing.

3. A part maintenance system of a semiconductor processing system according to claim 2, wherein

said vendor-side system estimates time period required until the level reaches a next limit value level by a part order processing means, and if said vendor-side system judges that the part can be prepared by that time period and a periodic maintenance of said semiconductor processing system is scheduled by that time period, maintenance schedule information for inputting the exchange of the part into a next periodic maintenance schedule is sent to said factory-side system by said vendor-side sending/receiving means through

FTYL01005C1/US

48/56

said network,

if said factory-side sending/receiving means receives the maintenance schedule information, said factory-side system inputs the exchange of the part into the next periodic maintenance schedule and renews said periodic maintenance schedule.

4. A part maintenance system of a semiconductor processing system according to claim 3, wherein

said vendor-side system estimates time period required until the level reaches the next limit value level by a part order processing means, and if the vendor-side system judges that the part can not be prepared by that time period, the vendor-side system judges that the maintenance of the part can meet the requirement, and when the vendor-side system judges that the periodic maintenance of the next semiconductor processing system is scheduled by that time period, maintenance schedule information for inputting the maintenance of the part into a next periodic maintenance schedule is sent to said factory-side system by said vendor-side sending/receiving means through said network.

5. A part maintenance system of a semiconductor processing system according to claim 1, wherein

the operation time or the number of operations of said part which is stored in the preset means of said factory-side system is a value based on a counted value which is counted

by a counter provided in correspondence with said part,
said measuring means of said factory-side system
measures the actual operation time or the number of actual
operations of said part based on the counted value counted by
the counter corresponding to said part.

6. A part maintenance system of a semiconductor
processing system according to claim 5, wherein

said measuring means measures the actual operation
time of said part by a counter corresponding to said part as
operation time of a part driving means which drives said part.

7. A part maintenance system of a semiconductor
processing system according to claim 1, wherein

the preset means of said factory-side system stores
normal operation time and its allowable limit value instead of a
allowable limit value of the operation time or the number of
operations of said part,

said measuring means of said factory-side system
measures the actual operation time of said part,

said maintenance judging means of said factory-side
system compares the actual operation time of said part and the
allowable limit value of the normal operation time of said part
with each other to judge the operation state of said part, and
said factory-side system sends the order processing request of
said part to said vendor-side system through said network by
means of said factory-side sending/receiving means in

accordance with a result of said judgment.

8. A part maintenance system of a semiconductor processing system according to claim 1, wherein

the preset means of said factory-side system stores time-passage change and its allowable limit value instead of a allowable limit value of the operation time or the number of operations of said part,

said measuring means of said factory-side system measures time-passage change of the actual operation of said part instead of the actual operation time or the number of actual operations of said part,

said maintenance judging means of said factory-side system compares the time-passage change of the actual operation of said part and the allowable limit value of the time-passage change of the normal operation to judge the operation state, and said factory-side system sends the order processing request of said part to said vendor-side system through said network by means of said factory-side sending/receiving means in accordance with a result of said judgment.

9. A part maintenance system of a semiconductor processing system according to claim 1, wherein

said factory-side system includes a factory-side server, said factory-side server includes said preset means, said measuring means, said maintenance judging means and said

FTYL01005C1/US

51/56

factory-side sending/receiving means,

said vendor-side system includes a vendor-side server,
said vendor-side server includes said order processing means
and said vendor-side sending/receiving means.

10. A part maintenance system of a semiconductor
processing system according to claim 1, wherein

said factory-side system includes a factory-side server
and a factory-side sending/receiving server, said factory-side
server includes said preset means, said measuring means and
said maintenance judging means, and said factory-side
sending/receiving server includes said factory-side
sending/receiving means,

said vendor-side system includes a vendor-side server
and a vendor-side sending/receiving server, said vendor-side
server includes the order processing means, and said
vendor-side sending/receiving server includes said vendor-side
sending/receiving means.

11. A part maintenance method in a part maintenance
system of a semiconductor processing system in which a
factory-side system having at least one semiconductor
processing system, and a vendor-side system owned by an
administrator who manages the maintenance of said
semiconductor processing system are connected to each other
through a bidirectional network, said method comprising:

a step for presetting a allowable limit value of operation

FTYLO1005C1/US

52/56

time or the number of operations of said semiconductor processing system by said factory-side system,

a step for measuring actual operation time or the number of actual operations of said part by said factory-side system,

a step for comparing said actual operation time or the number of actual operations and said allowable limit value with each other by said factory-side system to judge an operation state of said part, and for sending an order processing request of said part to said vendor-side system through said network in accordance with a result of the judgement, and

a step for carrying out the order processing of said part when said vendor-side system receives the order processing request of the part from said factory-side system through said network.

12. A part maintenance method according to claim 11, wherein

said allowable limit value which is previously set by said factory-side system is at least two stage limit value level,

when said factory-side system judges that said actual operation time or the number of actual operations reaches a first limit value level, the order processing request of the part is sent to said vendor-side system through said network, and when said factory-side system judges that the actual operation time or the number of actual operations reaches a next limit

FTYL01005C1/US

53/56

value level, a notice processing is carried out.

13. A part maintenance method according to claim 12, wherein

said vendor-side system estimates time period required until the level reaches a next limit value level by a part order processing means, and if said vendor-side system judges that the part can be prepared by that time period and a periodic maintenance of said semiconductor processing system is scheduled by that time period, maintenance schedule information for inputting the exchange of the part into a next periodic maintenance schedule is sent to said factory-side system through said network,

if said factory-side system receives the maintenance schedule information through the network, said factory-side system inputs the exchange of the part into the next periodic maintenance schedule and renews said periodic maintenance schedule.

14. A part maintenance method according to claim 13, wherein

said vendor-side system estimates time period required until the level reaches the next limit value level by a part order processing means, and if the vendor-side system judges that the part can not be prepared by that time period, the vendor-side system judges that the maintenance of the part can meet the requirement, and when the vendor-side system

FTYLO1005C1/US

54/56

judges that the periodic maintenance of the next semiconductor processing system is scheduled by that time period, maintenance schedule information for inputting the maintenance of the part into a next periodic maintenance schedule is sent to said factory-side system through said network.

15. A part maintenance method according to claim 11, wherein

a allowable limit value of operation time or the number of operations of said part which is stored in said factory-side system is a value based on a counted value which is counted by a counter provided in correspondence with said part,

actual operation time or the number of actual operations of said part is measured by said factory-side system based on the counted value of the counter corresponding to said part.

16. A part maintenance method according to claim 15, wherein

the actual operation time of said part is measured by a counter corresponding to said part as operation time of a part driving means which drives said part.

17. A part maintenance method according to claim 11, wherein

said factory-side system stores normal operation time and its allowable limit value instead of a allowable limit value

FTYL01005C1/US

55/56

of the operation time or the number of operations of said part,
said factory-side system measures the actual operation
time of said part,

said maintenance judging means of said factory-side
system compares the actual operation time of said part and the
allowable limit value of the normal operation time of said part
with each other to judge the operation state of said part, and
said factory-side system sends the order processing request of
said part to said vendor-side system through said network in
accordance with a result of said judgment.

18. A part maintenance method of a semiconductor
processing system according to claim 11, wherein

said factory-side system stores time-passage change and
its allowable limit value instead of a allowable limit value of
the operation time or the number of operations of said part,

said factory-side system measures time-passage change
of the actual operation of said part instead of the actual
operation time or the number of actual operations of said part,

said factory-side system compares the time-passage
change of the actual operation of said part and the allowable
limit value of the time-passage change of the normal operation
to judge the operation state of said part, and said factory-side
system sends the order processing request of said part to said
vendor-side system through said network in accordance with a
result of said judgment.